Table 3.6.6. Land-use, water velocity, and impoundment observations at the biotic sampling sites in the Long Creek and Red Brook watersheds.

Physical Characterization & Some Water Quality Information

Watershed Features..... In-Stream Features.....

Site Code	Predominant Surrounding Landuse	Local Watershed NPS Pollution	Local Watershed Erosion	Channelized ?	Dam Present ?	Terrain / Land Use (a)	Terrain / Land Use (b)
LC-S-0.016	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LC-S-0.369	Commercial	Obvious Sources	Moderate	No	No	urban	rolling
LC-S-0.496	Commercial	Obvious sources	Moderate	Yes	No	n/a	n/a
LC-M-0.380	Riparian Forest, Commercial	Obvious Sources	Moderate	Upstream culverts direct flow at a steep bank	No	urban	rolling
LC-M-0.533	Commercial	Obvious sources	Moderate	Yes	No	n/a	n/a
LC-M-0.910	Commercial	Obvious Sources	Moderate	No	No	urban	rolling
LC-M-2.191	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LC-M-2.270	Golf course	Obvious Sources	Moderate	No	Upstream ~ 0.5 mile	(golf course); upland conifer; urban	rolling
LC-Mn-2.274	Industrial Park	Obvious Sources	Moderate	Maybe	Upstream ~ 0.7 mile	upland conifer; urban	rolling
LC-Mw-2.896	Forest	Obvious sources	None	No	No	n/a	n/a
LC-N-0.415	Riparian Forest, Commercial	Obvious Sources	Moderate	Yes	No	urban	rolling
LC-N-0.850~	Commercial	Obvious sources	Moderate	Some channelization upstream of Gold's Gym	No	n/a	n/a
RB-0.071	Forest, Interstate	Obvious Sources	None	No	No	urban; upland/swamp conifer	rolling
RB-1.474	Riparian Forest, Commercial	Obvious Sources	Moderate	Maybe	No	upland/swamp hardwood; urban	rolling
RB-1.500~	n/a	n/a	n/a	n/a	n/a	n/a	n/a
RB-3.961	Forest; Junkyard & Landfill Nearby	Some Potential Sources	None	No	No	upland/swamp hardwood; upland/swamp conifer	rolling

Table 3.6.6 cont'd.

	Watershed Features.....			In-Stream Features.....	
Site Code	Predominant Surrounding Landuse	Local Watershed NPS Pollution	Local Watershed Erosion	Channelized ?	Dam Present ?
LC-M-0.020~	Commercial	Obvious sources	Moderate	No	Yes - ~ 0.5 mile downstream
LC-M-0.603	Commercial	Obvious sources	Heavy	No (but might be a newly-formed channel due to large stormwater quantities)	No
LC-M-1.653	Forest (although a golf course & an airport clearance zone are a few hundred meters away on either side).	Some potential sources	Moderate	No	No
LC-M-3.098	Wetland / Commercial	Some potential sources	Moderate	No	No
LC-Mn-3.224~	Forest	Some potential sources	None	No	No
LC-N-0.585	Commercial	Obvious sources	Heavy	No	No

Table 3.6.7. Field notes on observations of various organisms at the biotic sampling sites in the Long Creek and Red Brook watersheds. 0 = not observed; 1 = rare; 2 = common; 3 = abundant; 4 = dominant.

Qualitative Listing of Aquatic Biota.....

Site Code	Periphyton [(in the form of diatoms) was believed to form a coating on the woody debris in the stream.]	Filamentous Algae	Macro-phytes	Slimes	Macro-invertebrates	Fish		**observations about local biotic community**
LC-S-0.016	1	0	0	0	2	0		
LC-S-0.369	1	0	0	0	2	0		some periphyton.; few macrophytes; few macroinverts
LC-S-0.496	1	1	3	1	3	0		
LC-M-0.380	1	0	0	0	2	0		some peri.;some filamentous algae; some macrophytes; few macroinverts
LC-M-0.533	2	2	1	1	4	0		
LC-M-0.910	1	0	2	0	2	0		some peri.;no macrophytes, but common dwnstrm; few macroinverts; few minnows
LC-M-2.191	2	2	1	1	3	0		
LC-M-2.270	1	0	2	0	2	1		some peri.;some filamentous algae; no macrophytes, but some nearby; few macroinverts
LC-Mn-2.274	1	0	1	1	2	2		some peri.;some filamentous algae; some macrophytes; some blue green algae; few macroinverts; some minnows
LC-Mw-2.896	1	0	1	0	2	0		
LC-N-0.415	1	0	0	0	2	2		some peri.;some filamentous algae.; few macroinverts
LC-N-0.850~	1	0	1	0	2	1		
RB-0.071	1	0	0	1	2	0		some peri.; few macrophytes; few macroinverts; few fish (minnows?); some blue green algae
RB-1.474	1	0	0	1	2	0		some peri.; few macroinverts
RB-1.500~	2	2	1	1	3	0		
RB-3.961	1	0	0	0	2	0		some peri.; macroinverts common; few minnows

Table 3.6.7 cont'd.

Qualitative Listing of Aquatic Biota.....

Site Code	Periphyton [(in the form of diatoms) was believed to form a coating on the woody debris in the stream.]	Filamentous Algae	Macro-phytes	Slimes	Macro-invertebrates	Fish		**observations about local biotic community**
LC-M-0.020~								
LC-M-0.603								
LC-M-1.653								
LC-M-3.098								
LC-Mn-3.224~								
LC-N-0.585								

Table 3.6.8. Channel and riparian habitat assessment data using USEPA Rapid Bioassessment Protocols (1999) for low-gradient streams.

Habitat Assessment - Low Gradient Streams (USEPA Rapid Bioassessment Protocols).....

Site Code (# = Stream Mile)	Date	1 Epifaunal Substrate / Available Cover	2 Pool Substrate Character-ization	3 Pool Variability	4 Sediment Deposition	5 Channel Flow Status	6 Channel Alteration	7 Channel Sinuousity	8-l Bank Stability *left*	8-r Bank Stability *right*	9-l Vegetative Protection *left*	9-r Vegetative Protection *right*	10-l Riparian Vegetative Zone *left*	10-r Riparian Vegetative Zone *right*	TOTAL SCORE	RANK	Notes
MAX SCORE:		**20**	**20**	**20**	**20**	**20**	**20**	**20**	**10**	**10**	**10**	**10**	**10**	**10**	**200**		
LC-S-0.369	10/11/99	7	8	8	8	18	14	13	6	6	8	8	7	7	118	9	
LC-M-0.380	10/11/99	11	8	12	10	17	15	8	7	3	8	6	9	6	120	8	
LC-M-0.910	10/11/99	12	9	12	17	18	18	14	9	9	10	10	6	5	149	2	
LC-M-2.270~	10/11/99	13	10	7	18	18	14	14	8	9	7	7	5	3	133	7	These scores are applicable for the local area, but apparently not so for areas upstream in the golf course area (more encroachment on the stream)
LC-Mn-2.274~	10/11/99	12	8	10	18	19	14	12	9	9	8	8	5	9	141	4	
LC-N-0.415	10/11/99	13	10	12	11	16	17	9	7	7	10	10	8	5	135	6	Storm drain outlets are upstream.
RB-0.071	10/12/99	14	11	10	11	18	16	14	9	9	8	8	9	9	146	3	Culverts (and interstate drainage?) upstream.
RB-1.474	10/12/99	11	11	12	11	16	17	17	8	8	8	8	8	6	141	4	
RB-3.961	10/12/99	13	10	13	18	18	20	16	9	9	10	10	10	10	166	1	
vvv Data from 2000 vvv																	
LC-S-0.496	10/24/00	4	12	3	16	17	5	7	7	7	10	10	7	7	112		
LC-M-0.150~	11/2/00	9	9	13	12	19	18	17	8	8	10	10	8	9	150		Substrate variables were difficult to measure because the water chest deep here.
LC-M-0.380	10/24/00	13	15	14	11	13	13	8	7	4	8	8	8	6	128		
LC-M-0.533	10/24/00	16	17	13	18	18	9	5	4	4	7	7	6	6	130		
LC-M-0.603	11/2/00	5	11	13	13	18	12	6	1	1	8	8	4	4	104		Channel appears to been relocated due to high stormwater volumes coming out near the Service Merchandise shopping center complex.
LC-M-0.910	11/2/00	12	11	12	15	16	18	16	7	8	8	8	7	6	144		
LC-M-1.653	11/3/00	9	11	13	12	17	19	19	6	6	8	8	9	8	145		
LC-M-3.098	10/27/00	13	12	5	18	19	19	14	9	9	10	10	8	8	154		Culvert upstream of this site. Riparian vegetative zone width in the top 20 m of this reach was about <6 m due to a nearby parking lot.
LC-Mn-3.224~	11/3/00	15	16	13	12	16	20	17	8	8	10	10	10	10	165		
LC-Mw-2.896	11/3/00	8	7	7	18	19	18	10	8	8	10	10	10	10	143		
LC-N-0.595	11/2/00	10	14	7	11	10	13	10	4	4	8	8	3	3	105		
LC-N-0.850~	11/2/00	8	15	11	10	18	11	15	7	7	8	8	5	5	128		

Table 3.6.9. A) Comparison of woody debris abundances among various Long Creek and Red Brook sites as well as with Buzzards Branch in Virginia (Smock et al. 1989). B) The wood counts also were broken down into categories proposed by Kaufmann and Robison (EMAP - 1998) at the bottom of this page. [1]The "total # of pieces" listed at the bottom of section "a" included all wood with a mean diameter > 5 cm and being at least partially located within the bankfull channel area, including root masses. The percent that the channel was spanned was not considered here.

A)

Definition of dams: Any wood > 5cm in diameter and spanning > 1/4th the channel, including root masses.

	Buzzards Branch, VA	RB-3.500~	RB-2.100~	LC-Mn-2.600~	LC-Mn-2.274	LC-M-2.270	LC-M-0.910	LC-M-0.595	LC-M-0.533	LC-M-0.380
Length of Stream Surveyed (m)	300	100	100	100	100	100	100	100	100	100
Wood Diameter (cm)	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m	# dams / 100 m
5-10	1.7	35.0	25.0	0.0	18.0	22.0	14.0	8.0	2.0	12.0
10-20	2.7	19.0	16.0	0.0	9.0	5.0	3.0	8.0	0.0	9.0
>20	2.0	4.0	3.0	0.0	1.0	1.0	0.0	0.0	0.0	2.0
Root Mass	7.0	3.0	1.0	0.0	2.0	5.0	2.0	4.0	2.0	2.0
TOTAL # of Dams	**13.4**	**61.0**	**45.0**	**0.0**	**30.0**	**33.0**	**19.0**	**20.0**	**4.0**	**25.0**
[1]TOTAL # Pieces >5cm		**91.0**	**61.0**	**0.0**	**43.0**	**37.0**	**26.0**	**28.0**	**5.0**	**45.0**

B)

EMAP

diameter ; length (m)		RB-3.500~	RB-2.100~	LC-Mn-2.600~	LC-Mn-2.274	LC-M-2.270	LC-M-0.910	LC-M-0.595	LC-M-0.533	LC-M-0.380
		wood	wood	wood	wood	wood	wood	wood	wood	wood
0.1-0.3; 5.0-15.0 m		14	7			2	3	3		5
0.1-0.3; >15.0 m		4	1					1		1
0.3-0.6; 1.5 - 5.0 m			1							
0.3-0.6; 5.0-15.0 m		1				1				
0.3-0.6; >15.0 m										
0.6-0.8; 1.5 - 5.0 m										
0.6-0.8; 5.0-15.0 m										
0.6-0.8; >15.0 m										
>0.8; 1.5 - 5.0 m										
>0.8; 5.0-15.0 m										
>0.8; >15.0 m										
TOTAL		**19**	**9**	**0**	**0**	**3**	**3**	**4**	**0**	**6**